

ATTACHMENT 5

**USTA COMMENTS
CC DOCKET NO. 94-1, 96-262
JANUARY 7, 2000**

Affidavit of James H. Vander Weide
On Behalf of the United States Telecom Association
EXECUTIVE SUMMARY

In its Further Notice of Proposed Rulemaking, the Commission requests comments on the Staff's proposed new methodologies for estimating the productivity, or X factor, in the price cap plan. The Staff's proposed methodologies rely on a new method for estimating the cost of capital input in its productivity studies. The Staff proposes to estimate the competitive market cost of capital by assuming that: (1) the Commission's 11.25 percent authorized rate of return in 1991 is a correct estimate of the 1991 competitive market cost of capital; and (2) the competitive market cost of capital moves up and down by the same amount as the Baa bond rate.

I have reviewed the Commission Staff's proposed methodology for measuring the cost of capital input in its productivity studies, evaluated whether the proposed methodology is consistent with economic theory, and assessed whether use of a correct methodology for estimating the cost of capital would produce cost of capital values for the study period that are different than those derived by the Staff's proposed methodology. I conclude that the Staff's proposed methodology for measuring the cost of capital input is inconsistent with the economic definition of the market cost of capital. Specifically, the Staff's methodology incorrectly links changes in the market cost of capital to changes in the yield on Baa-rated bonds and ignores any changes in the cost of equity and market value capital structure of competitive firms over the period 1991 through 1998.

My studies indicate that changes in the market cost of capital cannot be directly linked to changes in the cost of debt. Although the cost of debt declined over the Staff's study period, the cost of equity remained relatively constant and the percentage of equity in the market value capital structure of competitive firms increased significantly. As a result, contrary to the Staff's determination, the total change in the market cost of capital from 1991 to 1998 was negligible. Their incorrect methodology has caused the Staff to significantly underestimate the competitive market cost of capital and, hence, overestimate the LECs' productivity. Furthermore, the Staff's Imputed X approach eliminates incentives for the price cap LECs to reduce costs, invest in new telecommunications infrastructure, and introduce new products and services.

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
Price Cap Performance Review for Local Exchange Carriers)	CC Docket No. 94-1
)	
Access Charge Reform)	CC Docket No. 96-262

AFFIDAVIT OF JAMES H. VANDER WEIDE

I. Introduction

1. My name is James H. Vander Weide. I am Research Professor of Finance and Economics at the Fuqua School of Business, Duke University. I am also President of Financial Strategy Associates, a firm that provides strategic and financial consulting services to clients in the electric, gas, insurance, telecommunications, and water industries. My business address is 3606 Stoneybrook Drive, Durham, North Carolina.

2. As a Professor at Duke University, I have taught courses in corporate finance, investment management, management of financial institutions, statistics, economics, and operations research, as well as a Ph.D. seminar on the theory of public utility pricing. I have also been active in executive education at Duke, directing and teaching in executive programs both stateside and abroad for leading international firms. In addition to my teaching, I have written a book entitled, *Managing Corporate Liquidity: An Introduction to Working Capital Management*, and numerous articles and research papers on such topics as portfolio management, the cost of capital, capital budgeting, the effect of regulation on the performance of public utilities, and cash management. I hold a Ph.D. in finance from Northwestern University and a B.A. in economics from Cornell University.

II. Purpose

3. In response to the Notice of Proposed Rulemaking in CC Dockets 94-1 and 96-262, the United States Telecom Association (USTA) has asked me to: (1) review the Commission Staff's proposed methodology for measuring the cost of capital input in its productivity studies; (2) evaluate whether the proposed methodology is consistent with economic theory; and (3) assess whether use of a correct methodology for estimating the cost of capital would produce different cost of capital values for the study period than the Staff's proposed methodology.

4. I conclude that the Staff's proposed methodology for measuring the cost of capital input in its proposed new productivity studies (the 1999 Total Factor Productivity Study, Option 2, and the Imputed X Study, Option 3) is inconsistent with the economic definition of the competitive market cost of capital. Economic theory requires that the competitive market cost of capital be measured by calculating a weighted average of the competitive market costs of debt and equity, where the market value percentages of debt and equity in a competitive firm's capital structure are used as weights in the calculation. According to economic theory, changes in the competitive market cost of capital can be traced to changes in: (1) the competitive market cost of debt; (2) the competitive market cost of equity; and (3) the market value percentages of debt and equity in a competitive firm's capital structure. In contrast, the Commission Staff's proposed methodology for measuring the cost of capital input in its productivity studies only considers changes in the competitive market cost of debt. It completely ignores possible changes in the competitive market cost of equity and changes in the market value percentages of debt and equity in a competitive firm's capital structure. From my analysis of changes in the competitive market costs of debt and equity and the market value percentages of debt and equity in a competitive

firm's capital structure over the Staff's study period, I conclude that use of the correct definition of the weighted average cost of capital would dramatically change the cost of capital inputs in the Staff's productivity studies.

III. The Staff Proposes a New Methodology for Estimating the Cost of Capital Input in its Productivity Studies.

5. The Commission's Notice of Proposed Rulemaking requests comments on two new Staff studies of the appropriate value for the productivity, or X-, factor in the Commission's Price Cap formula for the Price Cap LECs. The first study is a Total Factor Productivity (TFP) study that is similar in concept to the Staff's 1997 TFP study, with the exception that the Staff: (1) updates its 1997 study for two additional year's of data; (2) uses a new methodology for measuring the cost of capital input in its study; and (3) adjusts its measurement of labor costs to reflect the one-time accounting write-offs for employee reductions that occurred during the study period. The second study is an Imputed X Study that seeks to determine that X factor that would have produced an interstate accounting rate of return for the price cap LECs equal to the Staff's estimate of the competitive market cost of capital.¹

6. With regard to the cost of capital input in its 1999 TFP study, the Staff now proposes to use its own estimate of the LECs' competitive market cost of capital as the cost of capital input in its productivity study. As the starting point for estimating the LECs' competitive market cost of capital in its 1999 TFP study, the Staff assumes that the LECs' 1991 accounting profit rate (with depreciation included as a return on capital) is equal to the competitive market cost of capital in 1991. The Staff then assumes that changes in the competitive market cost of

¹ The cost of capital input in the Staff's Imputed X Study differs from the cost of capital input in the Staff's TFP study. In its TFP study, the Staff uses the cost of capital input as a measure of the user cost of capital, which is

capital are equal to changes in Moody's index of yields on Baa-rated bonds. Thus, if the LECs' realized profit rate, including depreciation, were 19 percent in 1991, and the index of yields of Baa-rated bonds declined by 200 basis points from 1991 to 1998, the Staff would assume that the competitive market user cost of capital in 1998 is 17 percent.

7. The Staff's Imputed X Study is similar to the Historical Revenue Approach previously proposed by AT&T in the 1994 price cap review. AT&T's Historical Revenue Approach was justly criticized in the 1994 price cap review proceedings because it: (1) incorrectly assumed that the LECs' accounting earnings are a good measure of their economic earnings; and (2) required the Commission to adjust the price cap LECs' prices whenever their accounting rate of return did not equal the price cap LECs' cost of capital.² Thus, AT&T's approach not only misestimated the LECs' economic rates of return, but also reflected a return to rate of return regulation, which the Commission had previously rejected. The Staff's Imputed X Study suffers from these same criticisms.

8. To measure the competitive market cost of capital in its Imputed X Study³, the Staff assumes that: (1) the Commission's 11.25 percent authorized rate of return was the correct measure of the competitive market cost of capital in 1991; and (2) changes in the competitive market cost of capital can be measured by changes in Moody's index of yields on Baa-rated bonds. If, for example, the yield on Baa-rated bonds declined by 200 basis points from 1991 to 1998, the Staff would obtain its 9.25 percent estimate of the market cost of capital by subtracting

defined as the sum of the depreciation rate and the weighted average cost of capital. In the Imputed X Study, the Staff uses the cost of capital input as a measure of only the competitive market weighted average cost of capital.

² See Affidavit of Dr. James H. Vander Weide in Support of Reply Comments of the United States Telephone Association, *In the Matter of Price Cap Performance Review for Local Exchange Carriers, Fourth Further Notice of Proposed Rulemaking*, June 1994.

³ Recall that the cost of capital in the Staff's Imputed X Study is intended to measure the weighted average cost of capital, not the sum of the depreciation rate and the weighted average cost of capital.

200 basis points from the 1991 11.25 percent authorized rate of return. By trial and error, the Staff would then attempt to find that X factor, applied over the entire 1991 to 1998 period, that would produce a 9.25 percent interstate accounting rate of return for the price cap LECs in 1998.

IV. The Staff's Proposed Methodology for Estimating the Cost of Capital is Inconsistent with the Economic Definition of the Cost of Capital.

9. It is apparent from the above discussion that the Staff has incorrectly taken a short-cut approach to estimating the cost of capital input in both its TFP Study and its Imputed X Study. Economists define the market cost of capital as a weighted average of the cost of debt and the cost of equity, where the market value percentages of debt and equity in the firm's capital structure are used as weights in calculating the weighted average.⁴ Since the market weighted average cost of capital depends on the cost of debt, the cost of equity, and the percentages of debt and equity in the competitive firm's capital structure, the weighted average cost of capital will change with changes in any of the three components of the weighted average cost of capital, not just with changes in the cost of debt. By focusing only on changes in the market cost of debt, the Commission Staff is implicitly assuming that: (1) the cost of equity moves up and down by the same amount as the cost of debt; and (2) the market value capital structure of competitive firms remains constant at its 1991 level.⁵ If these basic assumptions of the Staff's TFP and Imputed X Studies are incorrect (and my studies demonstrate they are incorrect), the Staff's proposed cost of capital methodology may significantly under- or over-estimate the competitive market cost of capital; and the resulting X factor in the Staff's TFP and Imputed X Studies may significantly under- or over-estimate the correct productivity factor in the price cap formula.

⁴ Regulators have sometimes defined the weighted average cost of capital using the book value percentages of debt and equity in the regulated firm's capital structure. Although this approach is undoubtedly inconsistent with economic theory, regulators justified the approach on the grounds that the allowed rate of return was applied to the book value of the regulated company's rate base. The use of book values is totally inapplicable in the Commission's productivity studies because: (1) the price cap companies are no longer rate of return regulated; and (2) the Commission is attempting to estimate productivity in a competitive marketplace.

⁵ In its TFP study, the Commission Staff is also implicitly assuming that the economic rate of depreciation remains constant at its 1991 level. This issue is addressed by another party in this proceeding.

10. The inherent problem with the Staff's proposed methodology for measuring the market cost of capital can be illustrated with the following hypothetical example. Assume that the cost of debt declined from 9.8 percent in 1991, to 7.2 percent in 1998. Also assume that the market cost of equity remained constant at 12.25 percent over the 1991 to 1998 period and that the optimal market value percentage of equity in a competitive firm's capital structure increased from 60 percent to 80 percent during this period. Under these assumptions, the market weighted average cost of capital for telecommunications companies would have remained approximately constant over the 1991 to 1998 period. (See Tables 1 and 2.) In contrast, the Staff's estimate of the competitive market cost of capital would have declined by 260 basis points, the amount of the decline in the cost of debt.

Table 1⁶
Weighted Average Cost of Capital Using 9.8% Cost of Debt

Component	Cost Rate	Percent	Weighted Cost
Cost of Debt	9.8%	40.0	3.92
Cost of Equity	12.25%	60.0	7.35
Total			11.27

Table 2
Weighted Average Cost of Capital Using 7.2% Cost of Debt

Component	Cost Rate	Percent	Weighted Cost
Cost of Debt	7.2%	20.0	1.44
Cost of Equity	12.25%	80.0	9.80
Total			11.24

⁶ These numbers do not reflect actual estimates of the cost of equity in either 1991 or 1998. They are chosen to conform to the Staff's reported debt costs in Table B-8, *Further Notice of Proposed Rulemaking*, November 12, 1999, and to the Commission's authorized 11.25 percent interstate rate of return in 1991. The authorized return was based on an embedded cost of debt of 8.8 percent, a cost of equity in the range 12.5 percent to 13.5 percent, and a book value capital structure containing 44.2 percent debt and 55.8 percent equity. Since the Commission's 11.25 percent authorized rate of return was based on an embedded cost of debt and a book value capital structure, it cannot properly be considered as an estimate the competitive market cost of capital.

V. The Assumptions in the Staff's Proposed Methodology Are Inconsistent with Capital Market Experience.

11. As noted above, the Staff's proposed methodology for measuring the competitive market cost of capital depends on the assumptions that: (1) the cost of equity moves up and down by the same amount as the cost of debt; and (2) the competitive market capital structure remains constant. To assess whether the Staff's proposed methodology for estimating the competitive market cost of capital provides accurate estimates, the Commission should specifically ask:

- Has the market cost of equity declined since 1991?
- If the market cost of equity has declined since 1991, has it declined by the same amount as the cost of debt?
- Has the average market value capital structure of competitive firms remained constant over the period 1991 to 1999?

12. To answer these questions, I have conducted three studies of the competitive market cost of equity and capital structure. These studies clearly demonstrate that the basic assumptions of the Staff's proposed methodology for estimating the competitive market cost of capital are inconsistent with competitive market experience. Contrary to the Staff's assumptions, the cost of equity has not declined since 1991, and the percentage of equity in the capital structure of competitive firms has increased significantly.

13. My first study estimates the cost of equity for the S&P 500 at the end of each year from 1991 to 1998 and at November 1999, to determine whether the cost of equity of these competitive firms declined over this period.⁷ The results are shown below in Table 3. Contrary to

⁷ I used the S&P 500 companies in my cost of equity studies, rather than the RHCs, because the Commission Staff is seeking to estimate the competitive market cost of equity; and the S&P 500 companies undoubtedly operated in competitive markets over this entire period. As a point of reference, I also examined the results of an application of the Discounted Cash Flow ("DCF") Model to the RHCs. Although I believe these DCF results for the RHCs understate the competitive market cost of equity, I note that the RHC DCF results remained relatively constant over

the basic assumption of the Staff's proposed methodology, the cost of equity of the S&P 500 has moved much less than the yield on Baa-rated bonds over the period December 1991 to November 1999. Indeed, as shown in Table 3, the yield on Baa-rated bonds declined 203 basis points from 9.26 percent in December 1991 to 7.23 percent in December 1998; yet the cost of equity for the S&P 500 at the same points in time declined by only 32 basis points. Likewise, when the yield on Baa-rated bonds increased by 92 basis points from December 1998 to November 1999, the cost of equity for the S&P 500 increased by only 33 basis points.

Table 3
 DCF Cost of Equity for the S&P 500
 Baa Bond Yields
 December 1991—November 1999

Year	DCF Cost of Equity	Baa Bond Yield
Dec-91	15.47%	9.26%
Dec-92	15.43%	8.81%
Dec-93	14.45%	7.69%
Dec-94	14.80%	9.11%
Dec-95	14.27%	7.49%
Dec-96	14.46%	7.89%
Dec-97	14.70%	7.32%
Dec-98	15.15%	7.23%
Nov-99	15.48%	8.15%

14. Second, I conducted a regression analysis of the relationship between the DCF cost of equity for the S&P 500 and the yield on Moody's Baa-rated bonds over the period January 1991 to November 1999, using monthly data. The resulting regression statistics are displayed below in Table 4. These data indicate that the Staff's assumption that the cost of equity

the period December 1991 to November 1999. Indeed, the RHC DCF results have increased from 12.07 percent in December 1991 to 13.22 percent in November 1999. These results are based on an Annual DCF Model with no flotation costs using the I/B/E/S mean growth rate as an estimate of g .

of competitive firms changes by the same magnitude as the yield on Baa-rated bonds is incorrect. In fact, the estimated .282 coefficient on the X variable establishes that the cost of equity changes considerably less than the cost of debt. When the yield on the Baa-rated bond changes by 100 basis points, the cost of equity for the S&P 500 changes by only 28 basis points.⁸

Table 4
 Regression of S&P 500 DCF Cost of Equity
 On Baa Bond Yields
 January 1991—November 1999

	Intercept	X Variable	Adjusted R Square	F
Coefficient	0.125	.283	0.274	40.99
t Statistic	34.09	6.402		

15. Third, I examined changes in the market value capital structures of both the S&P Industrials and the RHCs from December 1991 to September 1999.⁹ As shown in Table 5, the average percentage of equity in the market value capital structure of the S&P Industrials increased from 70.68 percent at year end 1991 to 82.95 percent at September 30, 1999. These data demonstrate that the percentage of equity in the capital structures of competitive firms has increased significantly over the period 1991 to 1999, while the Staff's cost of capital methodology incorrectly assumes that the percentage of equity in the capital structure of competitive firms has remained constant.

⁸ For the RHCs, the corresponding result is that the cost of equity changes by only 29 basis points when the yield on Baa-rated bonds changes by 100 basis points.

⁹ For this study, I used the S&P Industrials because these firms have operated in competitive markets over the entire period, and do not include financial firms whose capital structures are not comparable to the capital structures of industrial companies.

Table 5
Market Value Capital Structure of the S&P Industrials
December 1991—September 30, 1999
(\$Millions)

Year	Market Value	Total Debt	Percent Equity	Percent Debt
1991	2,041,732	846,833	70.68%	29.32%
1992	2,130,895	859,432	71.26%	28.74%
1993	2,289,261	900,262	71.77%	28.23%
1994	2,322,460	861,609	72.94%	27.06%
1995	3,090,789	953,797	76.42%	23.58%
1996	3,755,408	1,011,730	78.78%	21.22%
1997	4,958,600	1,107,665	81.74%	18.26%
1998	6,289,745	1,214,505	83.82%	16.18%
Sep-99	6,556,523	1,347,524	82.95%	17.05%

16. The percentage of equity in the market value capital structures of the RHCs has also increased significantly from December 1991 to September 30, 1999, as shown below in Table 6. The increase in the percentage of equity in the RHCs' average capital structure, from 69.41 percent at December 1991 to 83.14 percent at September 1999, is approximately equal to the increase in the percentage of equity in the average capital structure of the S&P Industrials. These data further demonstrate the inapplicability of the Staff's basic assumption that the capital structure of the competitive firm has remained constant over its study period.

Table 6
 Capital Structure of the RHCs
 December 1991 through September 30, 1999
 (\$Millions)

Year	Market Value	Total Debt	Percent Equity	Percent Debt
1991	97,807.469	43,100.888	69.41%	30.59%
1992	104,954.758	41,608.387	71.61%	28.39%
1993	120,735.203	39,838.791	75.19%	24.81%
1994	112,136.672	38,334.190	74.52%	25.48%
1995	156,876.664	39,969.294	79.70%	20.30%
1996	148,432.922	39,654.499	78.92%	21.08%
1997	204,685.158	58,926.000	77.65%	22.35%
1998	368,561.111	65,061.000	85.00%	15.00%
Sep-99	319,793.621	64,864.000	83.14%	16.86%

VI. Use of a Correct Methodology for Estimating the Cost of Capital Would Significantly Increase the Cost of Capital Values Used in the Staff's Productivity Study and Reduce the Staff's Estimate of the LECs' Productivity

17. As noted previously, the Staff proposes to estimate the competitive market cost of capital by: (1) assuming that the Commission's 11.25 percent authorized rate of return in 1991 is a correct estimate of the 1991 competitive market cost of capital; and (2) the competitive market cost of capital moves up and down by the same amount as the Baa bond rate. Table 7 shows both the changes in the Baa bond rate since 1991 and the resulting estimates of the competitive market cost of capital using the Staff's methodology. These data reveal that the Staff's methodology produces a significant reduction in their estimate of the competitive market cost of capital from 1991 to 1998. Since the Staff's estimate of productivity increases with decreases in the cost of capital, these data also suggest that the Staff's estimates of increased productivity over the 1991 to 1998 period are significantly influenced by its revised lower estimates of the competitive market cost of capital.

Table 7

Staff's Estimate of the Competitive Market Cost of Capital

Year	Debt Cost	Change in Yield Since 1991	Staff Cost of Capital
1991	9.80%		11.25%
1992	8.98%	(0.82%)	10.43%
1993	7.93%	(1.87%)	9.38%
1994	8.62%	(1.18%)	10.07%
1995	8.20%	(1.60%)	9.65%
1996	8.05%	(1.75%)	9.50%
1997	7.86%	(1.94%)	9.31%
1998	7.22%	(2.58%)	8.67%

18. The Staff's methodology for estimating the competitive market cost of capital is based on the assumptions that the cost of equity moves by the same amount as the cost of debt and the market value capital structure of competitive firms remains constant. I have shown that the Staff's assumptions are inconsistent with capital market experience. My studies indicate that the cost of equity has not moved by the same amount as the cost of debt over the period 1991 to 1998. In fact, the cost of equity is approximately the same in 1998 as it was in 1991. My studies further demonstrate that the percentage of equity in the market value capital structure of competitive firms, contrary to the Staff's assumption, has increased significantly since 1991. Taken together, these results establish that the Staff's proposed methodology produces results that significantly underestimate the competitive market cost of capital for the period 1991 to 1998. The question remains whether a correct method of estimating the competitive market cost of capital would determine that the cost of capital has changed since 1991.

19. To answer this question, I estimated the market value weighted average cost of capital from market data on competitive firms at year end for each year from 1991 through 1998. To estimate the market cost of debt, I used the yield to maturity on Moody's A-rated industrial

bonds. I estimated the competitive market cost of equity by applying an Annual DCF Model with no flotation costs to the S&P 500.¹⁰ As my estimate of the market value capital structure of competitive firms, I used the average market value percentages of debt and equity in the S&P Industrials. The resulting calculations of the weighted average cost of capital are shown in Table 8. These data reveal that the market cost of capital declined only slightly from 1991 to 1995, and increased thereafter. They also reveal, contrary to the Staff's determination, that the total change in the market cost of capital from 1991 to 1998 was negligible.

Table 8
Estimate of the Competitive Market Cost of Capital
December 1991—December 1998

Year	Cost of Debt	Percent of Debt	Cost of Equity	Percent of Equity	Weighted Debt Cost	Weighted Equity Cost	WACC
1991	8.76%	29.32%	15.47%	70.68%	0.0257	0.1093	13.50%
1992	8.31%	28.74%	15.43%	71.26%	0.0239	0.1100	13.38%
1993	7.28%	28.23%	14.45%	71.77%	0.0205	0.1037	12.43%
1994	8.70%	27.06%	14.80%	72.94%	0.0235	0.1080	13.15%
1995	7.02%	23.58%	14.27%	76.42%	0.0166	0.1090	12.56%
1996	7.43%	21.22%	14.46%	78.78%	0.0158	0.1139	12.97%
1997	6.95%	18.26%	14.70%	81.74%	0.0127	0.1202	13.28%
1998	6.68%	16.18%	15.15%	83.82%	0.0108	0.1270	13.78%

VII. The Staff's Proposed Imputed X Study Also Significantly Reduces the Price Cap LECs' Incentives to Invest in New Telecommunications Technology and Services

20. In addition to relying on an incorrect method for estimating the market cost of capital, the Staff's Imputed X Study relies on an incorrect philosophy of setting the price cap

¹⁰ I applied an Annual DCF Model with no flotation costs because the Commission has previously favored an Annual DCF Model with no flotation costs. However, economic theory supports use of a Quarterly DCF Model with flotation costs. In addition, although I could have chosen other reasonable proxies for the competitive market costs of debt and equity, my conclusion would have remained the same: the market cost of capital has not declined significantly since 1991, and the Staff's methodology for measuring the market cost of capital produces unreasonable results.

LECs' rates. Specifically, the Staff's Imputed X Study seeks to determine an X factor in the price cap plan that, had it been in place during the price cap period, would equate the price cap LECs' achieved accounting rates of return on interstate services during the price cap period to the Staff's estimate of the market cost of capital. By tying the price cap LECs' rates directly to their achieved accounting rates of return on interstate services, the Staff's Imputed X approach is a thinly-veiled attempt to reimpose rate of return regulation. Like rate of return regulation, the Staff's Imputed X approach would reduce the price cap LECs' rates whenever their accounting rates of return on investment exceed the Staff's estimate of the cost of capital and increase the price cap LECs' rates whenever their accounting rates of return on investment fall short of the Staff's estimate of the cost of capital.

21. In establishing the price cap plan, the Commission correctly recognized that rate of return regulation: (1) "discourages efficient investment;" (2) "encourages cost shifting;" (3) provides "little profit incentive to introduce new and innovative services;" and (4) "requires elaborate regulatory oversight of all the carriers' costs."¹¹ In contrast, pure price cap regulation provides incentives for the price cap LECs to reduce costs, invest in new telecommunications infrastructure, and introduce new products and services. Pure price cap regulation also reduces the administrative burdens of determining revenues, expenses, and rate base; arbitrarily allocating revenues, expenses, and rate base to the interstate jurisdiction; and determining an appropriate depreciation allowance in a rapidly changing technological environment. The Commission should reject the Staff's Imputed X approach to productivity measurement because it would eliminate the very incentives that the Commission's previous move from rate of return to price cap regulation was designed to enhance. Namely, the Staff's Imputed X approach would

¹¹ *Price Cap Performance Review for Local Exchange Carriers*, 9 FCC Rcd 1687 at ¶11 (1994).

eliminate the price cap LECs' incentives to reduce costs, invest in new telecommunications infrastructure, and introduce new products and services.

VIII. Conclusion

22. The Commission's Further Notice of Proposed Rulemaking requests comments on the Staff's proposed new methodology for estimating the cost of capital input in its productivity studies. The Staff's methodology fails to consider all the elements that constitute an appropriate estimate of the competitive market cost of capital. Specifically, the Staff's methodology incorrectly links changes in the cost of capital to changes in the yield on Baa-rated bonds and ignores any changes in the cost of equity and the market value capital structure of competitive firms over the period 1991 through 1998. My studies indicate that changes in the market cost of capital cannot be directly linked to changes in the cost of debt. In fact, while the cost of debt declined significantly over the Staff's study period, the cost of equity remained relatively constant, and the percentage of equity in the market value capital structure of competitive firms increased significantly. As a result, contrary to the Staff's determination, the total change in the market cost of capital from 1991 to 1998 was negligible. Because of the Staff's incorrect methodology, it has significantly underestimated the competitive market cost of capital during its study period. In the Staff's productivity models, an underestimate of the cost of capital causes an overestimate of the LECs' productivity during the study period. I also conclude that the Staff's Imputed X approach would eliminate incentives for the price cap LECs to reduce costs, invest in new telecommunications infrastructure, and introduce new products and services.